AVICULTURAL MAGAZINE

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THE AVICULTURAL SOCIETY

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THE AVICULTURAL MAGAZINE

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Wedge-tailed Sunbirds.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY
AND THE AVICULTURAL SOCIETY OF AMERICA

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THE WEDGE-TAILED SUNBIRD

(*Anthobaphes violacea*)

By J. J. YEALLAND (London, England)

The Wedge-tailed or Orange-breasted Sunbird was originally described in 1766 by Linnaeus when he named it *Certhia violacea*. It is the only member of its genus and its distribution is confined to the extreme south-west of Africa.

Stark (*Fauna of South Africa, Birds*, vol. 1) says: "The Orange-breasted Sunbird frequents open uncultivated country, rough hillsides, and the slopes and summits of mountain ranges, and especially where various heaths and proteas abound. It has a considerable vertical range, from sea-level to a height of 4,000 feet or more, and being a hardy little bird, seemingly indifferent to cold and wet, it is quite at home on the bleak and foggy mountains of the coast ranges in Cape Colony."

Stark goes on to say: "These Sunbirds feed largely on the nectar of various heaths, occasionally on that of proteas, also on small insects that frequent these flowers, and on gnats and flies which they dart upon, like Flycatchers, from a perch to which they constantly return. Like the Long-tailed Cape Sugar Birds, they breed during the winter rains, the nests near Cape Town being usually built in June and the eggs laid in July. This coincides with the flowering season of certain heaths and proteas on whose nectar they feed their young. On one occasion I found a nearly completed nest at the end of March. The nest, oval and domed, with a small side entrance near the top, is built of small flexible twigs of heath, dry grass, and narrow downy leaves, thickly lined with the soft white petals of a protea. It is not pendant like the nests of other Sunbirds, but is attached by its sides to the stalks in the centre of a thick bush of heath, a foot or eighteen inches off the ground. The eggs, two in number, are white dotted all over, but most thickly round the greatest diameter, with small spots and streaks

of greyish brown. They measure 0.65 × 0.48. On one occasion I noticed a female remove the eggs from a nest from which I had startled her, and place them under some thick undergrowth a few feet away. She apparently carried them in her bill. A second brood is frequently reared in September and October. From December to March these Sunbirds are generally in small family parties of four or six, the parents and their young, one of the band being nearly always a male in full plumage, while one or two are young males showing varying amounts of metallic plumage."

The flocking habit is interesting: this Sunbird certainly seems less aggressive than many others. No doubt it would thrive—as indeed do many of the more tropical ones—far better in an outdoor aviary than in a cage and would need only a little warmth in the shelter during winter. I once kept a pair in a large cage under quite cool conditions and they did well, but then the following summer when I was away, both escaped and were not heard of again.

* * *

BREEDING GOLDEN-MANTLED ROSELLAS SINCE 1951

By Dieter Overländer (Honnef/Rhein, Germany)

When I write " Golden-mantled " I do not intend to say that my Rosellas are pure Golden-mantled but they look like them. I believe that in Germany many, or most, of the birds so called are hybrids, or youngsters of hybrids, between *cecilae* and *eximius*. These " hybrids " in many cases look like *cecilae* so far as the colour is concerned, but in size they seem to favour the larger *eximius*. But this is only an idea of mine and not proved.

I hope the reader will not be disappointed that this breeding-account is not a story of splendid successes.

In 1951 I obtained my first pair of Rosellas, an old cock and a young hen still in immature plumage. In the middle of April, 1952, the cock drove the hen through the aviary, but as this aviary is 12 m. in length he could not harm her. Then I realized that she was too young and exchanged her for another belonging to my uncle. This hen after being in the aviary for only eight days was fed by the cock, and ten days later she laid her first egg. Unfortunately, this first clutch, five eggs, was destroyed after two youngsters had hatched because the log fell to the ground. The parents stopped breeding for six weeks and then they had another clutch of three eggs, which all hatched and were reared. But misfortune had not ceased as in winter the old hen escaped. Some months later I was told that she had been caught, fed on poultry food, and then escaped again.

In 1953 I obtained another hen from a first nest of 1952. This hen, though still in immature plumage, had four eggs in one nest, three of which hatched and were reared. Two other young pairs, two birds of which had been bred by myself, were doing nothing but feeding occasionally and inspecting the nests. I suppose it is not so difficult to breed from young hens as from young males.

In 1954 I had three pairs in full adult plumage and one young pair. I hoped to realize good results. The old pair had six eggs all of which hatched. The nestlings did well for a fortnight after emerging from the shell, then the eldest fell ill. The down was wet and stuck to the body. Every second or third day I found another dead young one. I believe they all died from cold and wet weather.

The other pair had a clutch of seven eggs. When laying the fourth the hen became egg-bound. She had left the nest and sat on the ground. I took the bird indoors and tried to massage the egg out of the body. I took her in my left hand and with three fingers of the right hand I pressed the egg out. But there are two points which must be observed You must not try to do things too quickly and must watch the bird and feel or see when the hen herself is straining to get rid of the egg and just at that moment you must help her. Then sometimes the egg must be moistened, especially when it is visible. Naturally, this way of curing is only possible when the bird is in good condition and when the egg-binding is not caused pathologically. In this way I have been successful three times. I suppose that the birds got egg-bound because the temperature had fallen rapidly. I think, however, that one can very often prevent it by feeding cod-liver oil. Thus in 1954 my Rosellas had twenty-eight eggs and reared only two young.

1955 was another poor season. When three young of my old pair had died I took the remaining two and reared them by hand. They were fed on milled sunflower seed, oats, and millet. Some greens and carrots were added and the food was moistened and warmed. The two youngsters did very well and turned out to be a pair. The male escaped, when I did not think he was yet able to fly ; but the next day he returned and I was able to catch him. He is still in my possession, and when I enter his aviary he takes sunflower seeds from my hand and sits on my shoulder. Two other young Rosellas I had taken out of their nest some weeks later. These birds were fed for some time on hulled millet, used for human consumption. Probably some vitamins were missing in this food and, though I added greens and carrots every day, the plumage developed very badly. They could not fly till they were eight months old.

Last year (April, 1956) there were three pairs of Rosellas on eggs and I hoped that we would have a good season. But I believe that this hope is a characteristic feature of every bird-lover all over the world.

HUMMING BIRDS

By Professor J. Berlioz (Paris, France)

(Address given to the British Aviculturists' Club, 13th March, 1957.)

Among the numerous groups of perching birds, the Humming Birds, which constitute the family Trochilidae, are, with the Trogons, certainly the best defined and most isolated of all, really showing no connecting link with any other type. Nothing is known about their ancestors and even their actual affinities remain quite obscure, although they are most generally considered by modern systematicians to be more or less closely allied to the Swifts.

The chief characters are as follows :—

Mostly of very diminutive size (the largest like a Swift, the smallest like a bumble-bee).

Bill, very thin, elongated, tubular, pointed, either straight or curved downwards or, sometimes, upwards.

Peculiar tongue, long, protractile, bitubular at the end, and attached to a curious bony formation encircling the skull, not unlike that of the Woodpeckers.

Extreme shortness of the wings and legs, more reduced than in any other type of birds. The wings always have ten primaries, but not more than five or six secondaries. The feet, also very short, always have four toes, often with strong claws.

Brilliancy of the plumage, mostly composed of scale-like feathers; the tail always composed of ten rectrices, very seldom less. The shiny appearance of the plumage is due to the physical structure of the feathers, which produces various shades of iridescent colouring, unrivalled by other birds, but always devoid of any pigment except black or rufous. Males and females are sometimes alike, but generally differ in various ways ; however, sometimes they are quite dissimilar in pattern and colouring.

They are very active, often aggressive and pugnacious little birds, fighting among themselves and even attacking much larger and stronger birds, such as birds of prey and Tyrant-Flycatchers, utilizing their wonderful power of flight and their very sharp acute bill. They have but few natural enemies : however, it is said that the smaller species, when hovering in front of flowers, may be caught and eaten by aerial predators, such as the Bemtevi Tyrant and even fall victims of the big American spiders.

Humming Birds are strictly confined to America, but here they are to be found everywhere where there are flowers. Although much more numerous in the tropical parts of America, some of them spread, during the northern summer, as far north as Alaska and Labrador. Similarly, in the southern hemisphere, one species at least is to be found during the southern summer as far south as the Strait of Magellan.

The reason why the life of the Humming Birds seems so closely connected with the existence of flowers is because in flowers they find both food and drink. It has long been wrongly believed that their food was essentially composed of the sweet secretions of the flowers ; but it is now well known that animal food is much more necessary to them and in fact they feed chiefly on very small insects which are themselves attracted by the liquids inside the flowers. Humming Birds are perfectly able, too, to catch the flying insects on the wing, using their long protractile tongue for this purpose quite as cleverly as in picking them out from the flowers.

Even in some countries where flowers are scarce, as is the case in the Juan Fernandez Islands, Humming Birds remain almost strictly insectivorous. In other very dry parts of the American Pacific Coast, where there are only few soft insects, Humming Birds may in some way become more or less frugivorous, feeding mostly on the juice of damaged cactus fruits, when the latter have been attacked by ants or other animals.

Considering the wide variation of food these birds may adopt according to climatic conditions, it is less astonishing to find them so widely spread everywhere in America, from the low tropical rain-forests to the highest mountain ranges or in subdesert areas. Owing to their perpetual need of food they are particularly numerous in cultivated areas, where gardens and orchards provide all kinds of flowers and insects nearly the whole year round. For the same reason, the Humming Birds which nest in temperate countries are migratory and several species every year make very long voyages, starting from their breeding grounds in Canada and Alaska and reaching as far south as Central America and Panama, where they spend the autumn and winter months.

The peculiar structure of the wings affords the Humming Birds a most peculiar and unique mode of flight ; it consists in an uninterrupted sequence of very rapid wing-beats, the speed of which may attain 50 or more per second for the smaller species. The name " Humming Birds " is actually derived from this flight, which closely resembles the flight of certain moths and produces similarly characteristic sounds. Another peculiarity of their ability of flight is that they are the only birds which are able to fly backwards, which they can do at the same speed and quite as easily as in any other direction. But, on the other hand, they cannot use their feet for any motion at all when perching on a branch or sitting on the ground. They will be seen remaining nearly motionless on the same twig for several minutes, then they will suddenly fly away at an astonishing speed and, after acrobatic flights in the air, come back to the same place, just as flycatchers do.

Nearly all their food is obtained on the wing, both the small insects

captured in the air and the food sucked from the flowers. They hover rapidly at the same place in front of the flower and push in the long bill and protractile tongue to reach the nectar and insects inside. However, on a few occasions, and especially in the case of certain mountain species which are more sluggish in their habits, they perch close to the flower, taking their food from the latter just as most of the Passerine nectarivorous birds do.

Nesting habits : there is still much to be learned about their nesting habits. Until quite recently it has been accepted as a strict rule that Humming Birds are polygamous and that both sexes, except for the short period of mating, live quite independently apart from each other, even during migration. Their nests are generally most delicate, though solid, cup-shaped structures, attached to twigs or various other supports, and the building of which is done by the females alone. They almost invariably lay two eggs, the latter being uniformly white and comparatively large for the size of the bird. Females also undertake alone the entire incubation and the rearing of the chicks. These remain about twenty-four days in the nest, until their wings are completely grown, as they are unable to move until they acquire the same ability of flight as the parents.

However, some very recent observations made in Venezuela seem to prove that, at least in a few cases, the male does not remain quite so indifferent to the rearing of the young as is generally believed. These observations concern a somewhat large and common species of Humming Bird, *Colibri coruscans*. The observer (Dr. E. Schäfer) discovered a nest containing one young, newly hatched, and one egg, to which obviously male and female came alternately both to incubate the egg and to feed the young bird (although both sexes of this species are more or less similar in appearance, the male had an abnormal feather pattern which rendered him unmistakable).

It is impossible to ascertain whether the same habits are to be found in all individuals of the same species or not. But it may be recalled that there is a modern theory that among birds in which the two sexes are similar in appearance, both parents generally assume the same duties in the rearing of the young. And, on the other hand, it is a well-known fact now that in many so-called " polygamous " birds, individual cases of monogamy may exceptionally occur.

Finally some words may be added concerning Humming Birds in confinement. At least three conditions are necessary for their good health and maintenance : space for flying ; insects as their fundamental food ; water and moisture for most species.

For more than half a century efforts have been made to keep these beautiful tiny creatures in confinement. But after many failures it was not until some thirty years ago that these efforts became really successful. The long delay involved in bringing them from America

to Europe, the need of fresh food every day, the wrong idea that sweet liquids constituted their normal diet, have been the chief causes of so many failures, and, for the few specimens able to reach Europe at that time, they generally died suddenly after a few weeks at most. I remember in 1922 visiting one of the first attempts made in Paris to maintain a small collection of living Humming Birds in Count de Ségur's aviary. Each bird was kept alone in a special cage, and several times every day was given a few minutes of freedom in a very large room.

In more recent times great improvement has been achieved both in transportation and in giving the best conditions of life in confinement. There is no doubt that when still more has been learned about their life in the wild, it will become still less difficult; but it is certainly rather unlikely that they will ever become real " pets " for their owners.

* * *

VISIT TO THE ZOOLOGICAL GARDENS, CHESTER

The Council of the North of England Zoological Society, through the Director-Secretary, Mr. G. S. Mottershead, kindly invite members of the Avicultural Society to lunch at the Zoological Gardens, Chester, on Tuesday, 25th June, 1957.

The invitation to lunch is *confined to members*. Free admission to the Zoo is offered to friends, and lunch may be reserved for them. Members intending to accept the invitation must notify the Hon. Secretary, 61 Chase Road, Oakwood, N. 14, before 18th June, 1957.

The Chester Zoo is 180 miles from London, 15 miles from Liverpool, 40 miles from Manchester, and 72 miles from Birmingham.

Suggested trains (subject to confirmation) from and to London are :—

Leave Euston, 8.30 a.m.	Arrive Chester, 12.24 p.m.
Leave Chester, 5.10 p.m.	Arrive Euston, 8.50 p.m.

Fares (subject to revision) return, 1st class, £4 4*s*. 10*d*.; 2nd class, £2 16*s*. 6*d*.

There are excellent bus services from Chester Market Square, Service No. 13, to within 150 yards of the main entrance to the Zoo, and a regular direct Zoo service to the north entrance; also a direct service from " Woodside ", Birkenhead, to the north entrance.

Visitors arriving by train will have to proceed by bus to the Market Square in order to catch a bus to the Zoo. If members arriving by the London train would kindly advise the Hon. Secretary, arrangements could be made for them to be conveyed direct to the Zoo from the station.

ADVENTURES WITH SOFTBILLS

By J. R. VAN OOSTEN (San Marino, California, U.S.A.)

(*Continued from page 50*)

During the month of January, 1956, I was very fortunate in being able to purchase from Professor Carl Naether a beautiful pair of Black-chinned Yuhinas in excellent condition. I already had one hen which had been imported a few years ago from India. In the same shipment I received a Golden-eyed Babbler and the two arrived as good friends and have remained so. It was a funny sight to see the Yuhina follow the Babbler, about twice her size, everywhere it went Never having seen any of these Babblers I was unable to sex mine, but I am sure that it is a male as it sings all the time. The new pair of Yuhinas were liberated after four days in a holding cage to allow the other birds in the aviary to get used to them. My greatest fear was that the cock might kill the odd hen, but upon being released the pair paid no heed to her. Therefore I left her in, a thing which I now very much regret.

Sexing these little birds I find fairly easy as there is a difference of colour on the breast of the hens. The colour throughout is uniform in both the male and the female with only that one exception. These breast feathers are almost a fawn grey, the male's being dark grey. Also I found that the male is somewhat larger than the two hens. This I noticed when I bought the pair, but with the three of them it is quite unmistakable. Both sexes have a little song, but the male's lasts longer and is uttered more often and is a little deeper in tone. One of their characteristics is when they are apart they call to each other in a short one-note call, which increases if something is found ; whereupon the other one comes at once. They are extremely inquisitive and spent the first few weeks exploring all the corners of the " glass house " and adjoining flight. They also spend a great deal of time hawking fruit-flies, and with each fly caught one hears the snap which most Flycatchers make. This sound also reminds one of the snap which Manakins make. One day while visiting Mr. Isenberg I heard his Black and White Manakin make the same snapping noise, but I believe that Manakins make this noise when not hawking insects.

In March the pair was observed inspecting the nest-boxes and finally they settled on a small finch nest-box which had a platform in front. The materials they used were string, cotton, pieces of burlap, small twigs, dog hair, with a lining of bird feathers, string, and dog hair. Being drafted into the military service at the end of March I was unable to keep any notes of what happened during the following two months. Upon my return in June I at once noticed that my Yuhinas

now totalled five instead of three. No doubt the success can be once again attributed to the fruit-flies as there was always an ample supply to be had. I feel strongly that with cultures of these flies, two or three to an aviary when young are in the nest, plus a few mealworms, and where possible other live food, it would not be impossible to rear many more of the baby softbills to maturity. The young were decidedly on their own because when they begged their parents for food and none was offered they flew to the feeding tray and proceeded to eat by themselves. They ate soaked currants, egg food, apple, grapes, and drank a little honey-water ; also they were able to hawk flies, so they were definitely not dependent upon their parents.

I had noticed that since my leaving the male had become somewhat more aggressive and that should have been the sign for me to remove the three birds. However, as we often do, I left them in there and the day before I left to go back to the Navy after a fourteen-day leave I found three dead Yuhinas on the ground. The old hen was taken to the taxidermist as were the two young, but I had all the insides taken to a lab and as luck would have it the young were a male and female. There is no doubt the male Yuhina killed the other three but of this I cannot be sure. These graceful little birds are hard to come by here in the States and the loss was very saddening. If I should lose one of the pair, especially the hen, it would be a long time before I could replace it. However, if the success is repeated next year the young will be separated as soon as they are able to feed by themselves.

The young resembled the parents except for being lighter in colour throughout the body and their crests were not yet as black. The bill did not show the colour of the parents. When adult the lower mandible has a spot of red at the joint where the bill meets the body, their feet were also not as full of colour. Beyond this they resembled and possessed all the funny and comical antics and habits which one associates with this family.

Some other attempts were made but nothing came of them. This was the first year that I was able to rear any young ones. Softbills are very funny in this respect as sometimes they breed and other times they do not even make an honest effort. One pair of Pagoda Mynahs built a nest, but no eggs were laid and the nest was finally destroyed. A pair of Red-eared Bulbuls and a pair of Yellow-winged Bulbuls were seen carrying nesting materials but nothing came of it. All my White-eyes—two pairs of Indian, one pair of Australian (obtained from Mr. Isenberg), and a male Australian which mated with a female Indian—have never shown the slightest interest in breeding or even building a nest. Mr. Isenberg each year always rears a few and I believe this may be due to the large clumps of dwarf bamboo which he has in their aviary. The clump I have is not thick enough so this could very possibly be the reason why they have not shown the least interest.

The group of birds which fascinates me the most is the Tanager family. I find these birds full of antics besides being extremely colourful. I have at the present quite a few of these gems, but in all the time since beginning with softbills I have run across very few females. These birds should be easy to breed if one could find the hens. One pair I obtained a few years ago from Mr. William Krebs were sitting on a nest of two eggs, but as he did not want to bother with the young he broke up the nest and I took the birds. Both were in excellent condition, but after seven days the hen succumbed. For what reason I was unable to find out as the death report showed no signs of anything wrong. The pair were the lovely Golden-headed Tanager. The male passed on about six months ago and I have not been able to find another. At the same time I had one Yellow-headed Tanager which looks the exact duplicate of the Golden-headed in body, size, and distribution of the colours ; the only difference, of course, was that they were not the same in colour, the former being gold on top and the sides of the head with a metallic green body and black wings, back, and tail. The latter's head is yellow, body a metallic sky-blue, wings, back, and tail black. Another very interesting one is the Blue-backed Tanager, which closely resembles and is related to Desmarest's Tanager. The difference is that the rump and front of the former is a metallic light royal blue instead of green, and the head is brick-red instead of scarlet. The little yellow band which separates the red of the head and the green of the back is not very noticeable in the Blue-backed. Also from Mr. Krebs I obtained a female Blue-crowned *Chlorophonia*, otherwise known as the Emerald Tanager. I had for years been worried about these birds, as I lost over ten after each had been in my collection for no more than two months. I finally decided to cut down on the banana and orange and that did the trick. By doing this I forced them to eat more egg food, which before they only pecked as if there was nothing else left. Now with the hen, I purchased from a dealer two young males which were coming into their adult moult ; both did well and the three were together all the time. After about two years I found both the males in the pond and have no idea how they got there. Fortunately I still have the hen and a male will not be hard to procure. Also I have had pairs of the Violet *Euphonia* but was never able to keep them more than a year for the same reason as the above birds. I also have had females of the Blue, Copper-headed, Palm, Maroon, Blue-and-Black, Superb, and Pectoral *Euphonia*. Three of these I still have left to-day. Last year I was very lucky in importing eighteen of the beautiful Red-eared Tanagers from Ecuador. I have eight left after losing two and selling eight. Mr. Charles Cordier brought thirteen back with him some years ago and one of these came to the San Diego Zoo. This is where I first saw the bird and fell in love with it. This year my wish came true and not

only did I get some of these birds but amongst them were three hens. If I were an artist I would make a plate for the Magazine, as their beauty can only be appreciated if seen in life ; however, a description will have to do. To begin with we will imagine that the bird is jet black ; in size it is just a little bit smaller than the Mountain Tanager. Just behind the eye is a small crescent-shaped spot of scarlet-red, from which the bird derives its name ; in the female the shape of this crescent is smaller and not as bright. Then from just below the chest in a straight line across, through the belly and rump is the other area of scarlet-red, which again is several shades lighter in the hens. The bird also has a spot of blue at the first wing joint which shows while sitting still, but much better when flying. It is the same metallic light royal blue which the Mountain Tanager has on its wing ; also upon close inspection it will be noted that this spot of blue in the hen is not as large as that of the male. They were very nervous when they first arrived, but now have settled down and three of them will take mealworms from the hand. In the same shipment I received another Tanager which reminds one in size and shape of an Emerald Tanager only bigger. The colour is a very deep and bright royal blue all over, with the front, from the neck to the vent, canary yellow ; the wings and tail have a greenish sheen to them when the bird is sitting in the sun. I could find no description in *Aviculture*, Vol. I, to fit the bird, so I am not able to name it. I sold the bird to Mr. Jerome Buteyn and the last time I saw it it had fully feathered out and looked beautiful. I hope in future to have as many of the Tanager family as I can as they are very interesting and always full of life.

In the same shipment I received five other birds which I can find no description of in either the back issues of this Magazine or in *Aviculture*, Vol. I, or in any of the books which I have seen. These birds arrived two days before I went back to the Navy and unfortunately all I have left are the skins. I hope that as soon as I am back in civilian life I will again be able to procure some more of these birds.

The first bird was some type of giant Ant-Thrush or Ant-Pitta which belongs to the New World. Few of these birds have ever been imported because of the fact that they are hard to trap as well as hard to see in the jungle. Mr. Cordier imported some a few years ago, from, I believe, British Guiana, but these were smaller and, I remember, they were called Helmeted Ant-Thrushes. The bird that I had resembled in body that of a Pitta, only about three-quarters again as large, with a little longer tail. The head was similar and the beak was longer and musty black in colour, the feet were a dull flesh colour. The eye was light brown with a black iris. The head above the eyes, back, rump, and upper side of the tail was dark grey-blue ; the chin to the sides of the neck and three-quarters of an inch below the chin

was a light rusty or copper brown. The rest of the bird—chest, belly, vent, and underside of the tail—was the fawn colour of a fawn Zebra Finch. The chest, belly, and vent were also dotted with black spots, each spot being one-quarter of an inch in diameter and surrounded by a ring an eighth of an inch wide, of the above-mentioned light rusty or copper brown. Each dot was roughly half an inch away from the next. The bird was quite tame, but when food was placed in the cage it would pounce on it like a dog. It would eat nothing but canned dog food, mealworms, cut up raw meat, some egg food, and a few raisins.

The next two birds were the same and in size resembled a Magpie Tanager, but with a more streamlined body. They looked like a member of the Tanager family but I could not tell for sure. The beak and feet were black and the eye was scarlet red with a black iris. This was the most outstanding feature of the bird. The top of the head was black with three red feathers which began at the crown and ran back to the back of the head ; these the bird would raise a half an inch, along with the black feathers, when it became excited in any way. The rest of the plumage was a light blue-grey, more blue, which became almost black on the wings and tail. The birds were not nervous and they would eat anything put before them. They preferred soaked currants, egg food, grapes, and milk sop to anything else. I could not tell if they were young or not, but it seemed that there should have been a few more red feathers on the head instead of just the three. I should mention here that all five of these birds arrived in perfect condition without so much as a spoiled feather.

The last two were members of the Cotinga family, a cock and a hen. These birds are very rare and not easy to come by, not even in the jungle. This was my saddest loss, for there will be one chance in a hundred to replace them. The hen was an evergreen green with yellow feathers dotted over the lower chest and belly, and her beak and feet were a yellowish colour. In size she was a little larger than a Mountain Tanager. About six months before I had seen the same bird in a shipment which Mr. Ray Thomas received from Colombia and which now is in Mr. Jean Delacour's collection in Los Angeles. Upon looking through an old issue of the American *Aviculture* magazine I saw a coloured picture of a pair of Swallow Tanagers and the hen looked exactly like the two birds in every way. However, while visiting Mr. Delacour one day, and seeing the bird, I was informed that it was a hen Cotinga of some sort. The bird was in beautiful shape and seemed to be quite happy in its new surroundings. With this in mind the next bird which I shall describe could very well have been the male of the species, for it had all the characteristics of the Cotinga family. The size and shape of the body was very similar to that of a Naked-throated Bell Bird, though it was not so large. The beak and feet were

orange, like that of the bill of a Toucan, and the eye was orangeish with the black iris and a black eye cere. The whole head and neck were jet black, the back, wings, and upper side of the tail were a dark evergreen green, while the chest, belly, vent, rump, and under side of the tail a green colour like the breast of a Blue-throated Barbet, only a shade lighter. The belly, lower half of the chest, and vent were dotted with black dots which were surrounded by a very small ring of white. The dots were about half an inch apart and about three-eighths of an inch in diameter. The ring was roughly a sixteenth of an inch wide. Both birds were very quiet and were not easily disturbed upon someone entering the room ; they only moved to eat, drink, bathe, and preen themselves. They would take only egg food made into small balls, a few mealworms, small pieces of cut-up apple, pear, banana, and tomato, and catoniaster berries and grapes, which they liked the best.

Another shipment came to me in November, 1955, which contained three of the very rare and beautiful Apricot Cocks-of-the-Rock. These birds are larger than the Scarlet Cock-of-the-Rock, of which I have a male, but look the same in all respects except that the scarlet is replaced by a deep orange. Upon arrival two birds did not look to be in good shape. I stayed up two nights following, hand-feeding them, but on the third day one was lost. A week later one was sold after it looked to be in good condition, but it died within two weeks. The death report on both these birds showed that they had a disease in the intestinal tract which they had had for some time. The last one was liberated after two weeks in the " glass house ", after the Scarlet had been transferred to the " medium size " aviary, and lived for another six weeks before it died. The bird was in perfect condition and seemed to be fine and healthy. As I was away at college I fear that the bird was not fed correctly, which caused its death. The death report stated that the lack of food had been the cause, and so, had the bird been fed correctly, it would have lived.

I have found that importing birds is not as expensive as one might think. I have also found that by shipping the birds in reinforced aluminium transport cages one cuts the air freight cost by half; this is where most of the money goes when importing birds. I also have the transport cages made collapsible so that I can send them back to the collector for the next shipment. Being able to import, one is able to get some of the rarer birds plus the ones you can buy from your dealer. Of course you are going to have losses, but if the food and water vessels are hung properly and enough food is provided and fixed so that it cannot spill on the bottom of the cage, you will eliminate another cause of death. In this way I have cut my losses down fifty per cent of what they used to be. I would also like to add that I have imported the greater part of my collection as it would have been almost

impossible for me to purchase them here in the States. On the whole the members in England and Europe can obtain foreign softbills more easily than we can here in the States. No doubt the reason is that more people are interested in softbills over there than here, but I, like others, hope that some day people here will take more of a fancy to them. One reason for this lack of interest may be that it is imagined the cost of feeding this type of bird is an expensive affair, but I think that the following might change some minds.

Much has been written by various members of the Society on the feeding of softbills and therefore I would also like to throw my hat in the ring. There are many ways of feeding and each person has his or her own idea on what is the best. I have tried to feed my birds in such a manner as to keep them in excellent condition and yet not spend a fortune on them. At present the birds are being fed by our German cook and I must say she does a better job than I do. As has already been pointed out the only live food which is given are the fruit-flies, but during the winter months this is supplemented with mealworms. Also there are other insects which are available to them in the green moss around the waterfall, off plants, and from the ground. I might add that freshly cut grass is always given to them and they seem to enjoy poring over it in search of all sorts of things.

The mainstay of their feeding is a ready prepared Mockingbird food which I buy from a dealer. This is made of one-half Spratt's Mockingbird food and one-half finely ground enriched dog meal; to this is added equal amounts of cod liver oil and wheat germ oil to make it still fairly dry, but so that each ground is well soaked in oil. Then ten pounds of dried flies are added to a hundred pounds of mixture. To this I myself add one box of pablum and one of wheat germ cereal to each ten pounds. This dries it up a bit more and adds a few more desirable ingredients. This is fed to all the birds and is also relished by doves, quail, cardinals, and Rainbow Buntings.

The next main item which I have found to be very good, and probably most responsible for keeping my birds in good health and excellent condition, is the egg food formula mixture which I have worked out. It consists of the following :—

6 (six) tablespoons of Pablum.
6 „ „ „ Wheat Germ.
1 (one) „ „ Powdered Grade A Milk.
1 „ „ „ Horlick's Malted Milk.
1 „ „ „ Mellin's Food.
1 „ „ „ Powdered Carrot.
1 „ „ „ Fish Meal.
1 „ „ „ Meat Meal.
1 „ „ „ Bone Meal.
1 „ „ „ Powdered Sea Kelp.
1 „ „ „ Spratt's Red Colour Canary Food.

After thoroughly mixing all the above together, five grated hard-boiled eggs are added and mixed thoroughly with the mixture. The mixture will turn out crumbly in texture and will keep in glass jars for a week if kept in the ice box. My birds prefer this mixture to anything else I feed and nothing much else is touched until it is all gone. I feed it in very generous amounts to all my birds. The last two items, colour food and sea kelp, which contains iodine, are, I think, responsible for keeping the reds, yellows, and oranges from fading during the moult. This was especially noted in the Scarlet Cock-of-the-Rock, for after four moults his colour was the same as the day I got him. Then, while away, my father ran out of both the above and the bird moulted twice before I could obtain any more. Now that it is back on the mixture the bird seems to be regaining some of the scarlet and is redder now than he was last year at this time. The same thing held true for a male Red-rumped Tanager which never lost any of the brilliant red colour of his rump after five years in my collection.

Along with the two above items the following things are also fed. A jar of peanut butter, two jars each in the two larger aviaries, is kept in front of them at all times, also a bowl of sunflower seed and raw peanuts mixed together. Soaked currants and soaked raisins, for the larger birds, are given fresh daily, as is fruit. The small birds receive fresh honey-water daily and three times a week five drops of Zymadrops and ABCD drops are added. This gives the birds much of the vitamins and minerals which they do not get otherwise. Twice a week canned dog food, a brand with no gravy, is given to all the birds. Milk sop is fed once a week during the hot months and twice a week during the colder months of the year. It is made in the following way :—

½ quart of Grade A Milk.
2 (two) tablespoons of Honey.
1 (one) „ „ Armour Beef Extract.
5 (five) drops of Zymadrops.
5 „ „ „ ABCD drops.

This is then heated until thoroughly mixed, and cooled before being fed. Every other week they receive a bowl of cottage cheese, of which they are extremely fond. Occasionally they are also given cooked peas and diced beet and carrots.

During the various seasons of the year many wild berries are to be had and a bowl is always kept full in all the aviaries. The rest of their feeding consists of fruit. Being fortunate in having a little acreage and a good climate we are able to grow some fruit trees which produce enough for home consumption as well as for the birds. We have fig, avacado, persimmon, apricot, orange, plum, peach, and nectarine trees on the place. Apple, banana, and tomato is purchased the year around, and pear, grapes, melon, and cantaloup are purchased when in season. All the fruit is eaten by all the birds, but the inhabitants

of the "glass house" will not touch plums, peaches, nectarines, melons, or cantaloup. Once a week we purchase two lug crates from the market of apples, tomatoes, and bananas, and the other fruit mentioned above when in season. This costs us seventy-five cents a week. This fruit is not saleable to the public because it is somewhat damaged but for the birds it is perfect and I have never lost one bird because of bad fruit. The fruit is kept in a separate ice box in the garage and stays perfectly good for a week.

This then is the extent of what I feed my birds. I have a little over 200 softbills and the cost of feeding them ranges from ten to fourteen dollars a month, which I feel is very cheap.

I hope that this article will be of interest to the members and that more will write on the adventures of their birds. The keeping of birds is a greatly expanding hobby and pastime and the more interest the more we can learn. As for myself, as each day passes I find out something new in the habits of the birds or how better I may take care of them. It is up to each member to support the Magazine, for I am sure that each one of us has learned much by reading its pages.

* * *

BREEDING TANAGERS

By R. E. B. Brown (Newcastle, N.S.W., Australia)

At the end of the war an absolute ban was imposed by the Veterinary Authority on the importation of all birds into Australia, for fear of the introduction of Fowl Pest, or Newcastle Disease. This is said to be widespread in the world, but has never occurred in Australia. The ban, coming when it did, at the end of the war, found our aviaries much depleted with regard to foreign birds as, of course, none had been imported during the war. Although I am of the opinion that Australian birds are second to none, both in beauty and interest, it is sad to be cut off from many old friends among the foreigners.

At the time I had three red Tanagers, a pair of Scarlet (Brazilian), and a hen Maroon, so I thought I would try to breed a domestic race of these birds. In this I have had some success. I have now bred them to seven generations, and have four main kinds, pure Scarlet, obvious hybrids, Maroon with a dash of Scarlet, and Scarlet with a dash of Maroon. I have others showing various degrees of mixed blood. The hybrids are very beautiful birds.

I first paired the Scarlets together, and next summer mated their son to the hen Maroon. A point of interest is that I successfully mated him before he came into colour; he had white patches on his beak, but was quite brown. The hybrids are fully fertile, and Maroon is dominant over Scarlet. The Tanagers are all perfectly tame with people they know, but it is surprising how they can distinguish strangers.

These birds are kept in open garden aviaries with natural trees growing in them, and no other shelter is necessary in this climate ; I have never been able to persuade them to go to nest in anything but a living natural tree. They will live in small aviaries, but will not breed, and they do not look well in them, and tend to lose their bright red colour. The smallest aviary I have ever successfully bred them in is 18 feet long, 6 feet wide, and 6 feet high, with a privet tree at one end and a shelter at the other. But they do much better in larger aviaries ; the larger the better. My largest is 25 feet long, 15 feet wide, and 12 feet high. When breeding only one pair of Tanagers can be kept in an aviary, but they do not interfere with other birds.

My birds are fed on softbill mixture to which freshly grated hard-boiled egg is added to the daily ration. Fruit is, of course, essential, and I always provide banana, apple, pear, and orange, and paw-paw, grapes, and mangoes, etc., in season. In a country where fruit is hard to get, banana and one other fruit would be enough, but the birds should always have green food, grit, and crushed egg shells. They should also have insects daily. They like white ants themselves, but will not feed the young on them.

I think I should describe the breeding of these closely related species together, merely mentioning the differences. They both build cup-shaped nests of grass, small twigs, teased rope, and cotton wool. They often place broad leaves on the bottom of the nest. The Scarlet builds a very strong nest, the Maroon a much weaker one. I get over this by giving the hen Maroon some cotton wool, noting where she puts this, and placing a wire gauze shape at the *exact* spot where she wants to build. Nearly all hens will go ahead and build in the wire shape.

The eggs of both species are blue with reddish-brown spots, the Maroon eggs being smaller ; the Scarlet often lays three eggs, the Maroon never more than two. Incubation for both is twelve days. Whilst the young are in the nest live food only is given, and most of the feeding is done by the hen. The young are coloured like the hens. They always leave the nest on the twelfth day ; they cannot fly well at this stage, but are able to hop about in the trees. As soon as they leave the nest the parents start giving them banana and soft food as well as the live food.

The live food given should be varied as much as possible, the parents will not give the young white ants at all, but demand larger insects. I have on one occasion reared a nest of Scarlets on mealworms alone, but much better specimens are reared if a variety is given. Some hens flatly refuse to feed two days running on the same insects, but simply demand a variety. My old Maroon hen, now 19 years of age and still breeding, does this. I use mealworms, casemoth grubs,

grasshoppers, mantins, crickets, spiders, and the large green grubs found on privet trees, and sweet potato vines (the latter must be cut up). The green foods most relished are thistle buds and fresh lettuce.

The young are not independent of the parents until three weeks after leaving the nest; they must then be caught up or they will interfere with the next clutch. The Scarlet Tanager cocks come into full colour when 12 to 15 months old, and the Maroons 10 months to two years.

* * *

BREEDING THE SUPERB PARROT IN CALIFORNIA

(*Polytelis swainsonii*)

By David West (Montebello, Calif., U.S.A.)

The breeding of three young Superb Parrots in 1955 and three again in 1956 in California has been something of an avicultural triumph. Doubtless members in Europe will not feel this is a very accurate and warranted statement, but it is now some fifteen years since this beautiful species has been bred in the United States.

Probably I ought to say that the term "Superb" is not very frequently used in describing *Polytelis swainsonii* and Barraband's is the more commonly used name. But I have always felt that the appellation "Superb" is wonderfully accurate for this species. The beauty of plumage and elegant shape, accompanied by its winning ways, make it a favourite.

The only other recorded breeding of the Barraband's or Superb Parrakeet in the United States is the record by Mr. I. D. Putnam, in San Diego about 1940. The late Mr. Putnam told me that three young were reared from this breeding. One young from this breeding was a tame male which Mr. Putnam kept for a pet; later it passed into the hands of Mrs. Hubbell, of San Diego, and was the father of the young hybrid Barraband's × Rock Pebblers she raised a few years ago.

It is odd that this species has proved to be so difficult to breed here in America. They are easily kept in good health and always appear to be happy and contented, but somehow they just don't nest. However, hybrids between male Superbs and female Crimson-wings were reared on several occasions by the late Dr. Ralph Woods and they were exceptionally beautiful birds. These hybrids all appeared to have been sterile when mated back to parents or *inter se*.

My own pair did not nest in 1952, 1953, or 1954. In each of these years the pair were obviously in breeding condition and matings and feedings were observed, but they never settled down to an actual nesting.

During 1955 and 1956 the male came into breeding condition slightly

ahead of the hen. Male Superbs display spasmodically throughout the year and their display is not unamusing. Beginning in March, the male began calling and displaying to a rather bored and uninterested female. This process continued and late in March the female became more receptive and interested. Very suddenly, in April, the female allowed the male to feed her very frequently and invited pairing. Even so, she had not visited either nest-box and did not seem to approve of either the grandfather-clock nest or the smaller box. In late April, following a period of about ten days where pairings took place several times a day, the female entered the smaller of the two boxes provided and began nesting. Incubation apparently began with the first egg and from that time until the young were about two weeks old the hen was observed only twice. She was a perfect prospective mother and did not leave the nest when I entered the aviary to replace food, etc.

During the incubation period the male would visit the nest-box and feed her. At this time the squeaking sound the hen would make when she was being fed by the male could be heard. The nest-box chosen was about 18 inches wide, 18 inches deep, and 18 inches tall—and so it was sufficiently roomy to permit the male to enter and easily feed the hen without the danger of scattering or breaking the eggs.

The sound of young being fed was heard on the twenty-second day after incubation started. From about the third day following this the male began to enter the nest and to (apparently) feed the young as well as the hen. As Superbs are good-sized birds the male was observed spending an unusual amount of time eating to provide the necessary food for the family. Fruit, as apple and orange were appreciated, and fresh corn on the cob was also devoured. Greens, as *poa annua* or grass clippings, and the berries of the pyracantha were also given. Soaked bread was given in the morning and again in the evening and seed was scattered on the aviary floor where the earth's dampness caused some of it to sprout.

The aviary the parents occupied was 17 feet long, 3 feet wide, and 8 feet tall. A shelter at one end was provided for inclement weather—which we do have in California ! The nest-box was hung at the edge of the shelter and faced north. Rough wood chips were used as nesting material. A large stick was placed just below the entrance to the nesting-box and the male seemed to enjoy sitting on this perch and talking to his mate inside the nest every now and then. He would occasionally fly to the box, look inside, and then fly away—satisfied that all was well.

The youngsters prospered and the mother bird brooded them very closely for the first two weeks. An observation of the nest revealed that three of the four eggs had hatched and that the young were developing nicely. About the end of the third week a second look revealed that either the mother or the father were picking the feathers

on the back of the babies. Since the guilty parent was unknown and the picking was not dangerous nothing was done other than to keep hoping !

About the end of the fifth week the first two youngsters came out of the nest. They were strong on the wing and quite steady, but looked very unattractive because their backs were all feather-picked. The third youngster left the nest three days later and from the very minute she left the nest the mother began to pick her back so severely that the youngster would bleed. Neither parent would try to feed the third youngster once she had left the nest (for it was a young hen) and so this baby was taken to a friend who very kindly offered to hand-feed it for a few days until it was on its own.

Eventually all three of the young Barraband's or Superbs were placed together in an aviary where they have done very well. At this time (November) they appear to be two cocks and one hen—though no definite red feathers have come in on the youngsters thought to be cocks. The feathers on the back have grown in and one could not, at this time, tell that they had ever been picked.

I should like to add that Mr. G. Rayson Brown was also successful with this species during 1955 and 1956, rearing four youngsters in 1955 at about the same time my breeding took place and three youngsters in 1956.

If anyone could throw any light on the reason why the female picked the youngsters I should appreciate the information so that a recurrence could be avoided. From past experiences with this type of thing I have had females pick their youngsters one year and then skip two or three years. It certainly is an interesting problem and probably not too akin to the same problem in Budgerigars, because these larger birds do not over-nest (would that some of them would !).

It is interesting to note that the Barraband's in my collection and also Mr. Brown's have been old enough to nest for several years, but not until this year did they attempt to do so. Now one can only hope that other reluctant species will follow their lead.

* * *

THE BENGALESE FINCH

By ERICA EISNER (Oxford, England)

The Bengalese is well known as one of the hardiest and easiest to breed of the weaver-finches (*Estrildinae*) commonly kept in captivity. It is now also showing itself to be an excellent animal for laboratory study. The most frequent type is a piebald of brown (' chocolate ') and white, and fawn and white birds are also common. Pure white birds have been bred for a long time, but it seems to be more recently only that ' self-coloured ' browns and fawns have been noted. Judging by advertisements and the statement in a recent book (Risdon, 1953) that " I have never seen or heard of a self-coloured chocolate or self-coloured fawn ", these seem to be not yet well known.

The classification into piebalds and self-coloureds is in fact quite arbitrary, for there is an unbroken gradation from birds with no white feathers through piebalds of different degree to birds with no coloured feathers. The ancestral bird was surely not a piebald or a pure white, but a self-coloured bird ; this is not only obvious of itself, but there is evidence for it. Taka-Tsukasa (1922) quotes a description of the original Japanese stock, which apparently had no plain white feathers.

Wild birds with an odd few white feathers are not rare, but it would seem that natural selection keeps this tendency towards piedness suppressed, so that the normal type is maintained. A reasonable explanation for this is that birds showing clear patches of white feathers are more conspicuous than normals, and therefore more likely to be killed by predators. In captivity, a bird which had white feathers would not only not be eliminated, but would probably be cherished as a rarity and used for selective breeding. According to Taka-Tsukasa, the white Java Sparrow was produced in Japan from grey birds with white feathers in their wings. It seems most probable that the Bengalese was developed similarly.

The genetics of variation in the amount of white shown has not been worked out in the Bengalese, and as it undoubtedly depends upon a multiplicity of genes it would probably be extremely difficult to do so. Such is certainly the case in the mouse. Although that animal has been the subject of a vast amount of genetical work, it is only in recent years that much progress has been made in the analysis of ' spotting ', i.e. of the variation in the distribution of white areas. Like that of all products of long-continued selective breeding, as Grüneberg (1952, p. 65) says, the genetics of spotting in the mouse is very complex. There is little reason to hope that the Bengalese provides an exception. On the average, the offspring of any pair of these birds tend to be intermediate in piedness between their parents,

but exceptions to this rule are frequent. I have no experience of pure white birds, but self-coloureds can be obtained by careful selection from pairings of birds having few white feathers.

In contrast to the complex problem of the genetics of piedness, that of the alternative colours is simple. When a bird has coloured feathers they are either brown or fawn, and these colours are mutually exclusive. Indeed, it is not only the plumage which shows this, for fawn-feathered birds have fawn pigment on beak and legs, and newly hatched chicks which will later grow fawn feathers have fawn coloured mouth markings and eye-balls, while future browns have the mouth markings and eye-balls dark. Incidentally, the mouth markings reflect also, though not so reliably, the future degree of piedness: self-coloureds have the complete horseshoe pattern characteristic of the Mannikin group of the Estrildines, but future piebalds have it disrupted to a degree correlating roughly with the disruption of the plumage pattern they will later show.

It is altogether evident that the genetic character of ' fawn ' is a simple Mendelian recessive to that of ' brown '. Two fawn birds mated together will invariably produce fawn offspring, and no browns. Two brown birds which are known to have had no fawn birds in their ancestry will likewise be true breeding, but brown birds can carry the factor for fawn without its being evident except from the results of breeding tests. A pure brown mated to a fawn will produce only brown offspring. If these are then mated to each other, approximately one quarter of this second generation will be fawn ; if they are mated to fawn birds about one-half of the offspring will be fawn. If a pair of brown birds breed occasional fawn young, then they must both carry the factor for fawn ; if only one of a pair of brown birds has the fawn factor then that pair will never produce fawn offspring. Again, it is most probable that some wild birds do carry such recessive colour factors, but the chances are against their mating with another bird which also carries it. If this were to happen, the unusual offspring would probably have a smaller chance of survival than the normal type. In captivity, however, such recessive characters rapidly become more common by inbreeding and selection.

My aim in the foregoing genetical discussion has been to clear the ground for a discussion of the ancestry of the Bengalese, which has so far constituted a very vexed question. Some accounts (e.g. Risdon, 1953) say that the breed originated in Japan, but more cautious authorities say only that it has been bred for many years in Japan, or is often bred in Japan (e.g. Neunzig, 1921). Taka-Tsukasa (1922) gives the most informative account of the history of the Bengalese. He says that according to an old Japanese book on cage birds, the original stock was imported from China " about 200 years ago ". He does not say whether these were wild birds or an already domesticated stock,

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Bengalese Finches
(about life size).

A self-coloured male Bengalese courting a pied female. This shows in particular the slight markings on the belly feathers where these are not pure white.

To face p. 102.

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FIG. 1.—BENGALESE FLEDGLINGS.

The bird on the left is a perfect self-coloured fawn, while two of the brown birds may be classed as self-coloured, although they have a few white feathers—the male of Plate (1) is one of these. Such a simple juvenile plumage is shown by many mannikins; the dark upper parts and light belly are differentiated at about three months old.

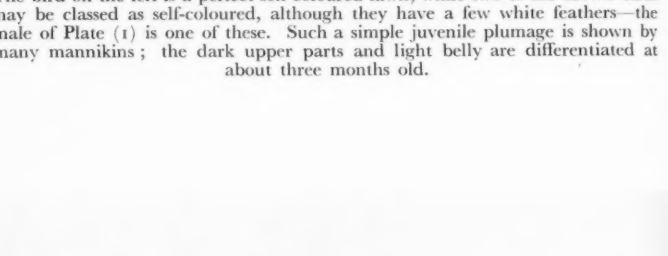

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FIG. 2.—SKIN OF BENGALESE FINCH.

This shows especially the light edges of the breast feathers and the sharply pointed tail.

To face p. 103.

but gives a description of the original species and says that the white and fawn varieties appeared considerably later. It may therefore be said that the Bengalese breed as we know it to-day originated in Japan, but from non-Japanese ancestors. The latter part of this statement is necessary also because no possible ancestral species occurs wild in Japan.

What, then, was this ancestral stock? It is quite obvious, and generally recognized, that the Bengalese resembles the Striated and Sharp-tailed Finches more than it does any other. However, it is nowadays quite generally, at least in this country, supposed to be some kind of hybrid of these types and possibly also the Silverbill; no evidence is ever given for this view.

Probably, the present acceptance of this hybrid theory stems from the preference of Dr. Butler (1894) for it. In the first two decades of this century, though, this view was frequently contested, and even Butler himself (1907) decided against a hybrid origin. The Bengalese was then usually thought to be a domesticated strain of the Sharp-tailed Finch. For instance, the reviewer writing on p. 112 of the AVICULTURAL MAGAZINE for 1902–3 says: "Domestication is also responsible for . . . and white and pied forms (Bengalese) of the Sharp-tailed Finch. We perfectly agree . . . that there is no reason for supposing the latter birds to be hybrids." Recently, Steinbacher and Wolters (1956) have written that it is certainly wrong to suppose that the Silverbill (p. 119) is an ancestor of the Bengalese which they think is most probably a domesticated Sharptail (p. 142), but they do not discuss the matter. I hope to give convincing evidence that this is the correct view.

Possibly the Silverbill was suggested as a part ancestor in order to explain the occurrence of fawn individuals, for the Silverbill is fawn though of rather a different shade. The knowledge that fawn colour is a mutant inherited in a perfectly normal way makes such an explanation altogether unnecessary, and there is no evidence supporting it. Indeed, if their statement is well established, Steinbacher and Wolters give the strongest possible evidence against the view that the Silverbill is an ancestor of the Bengalese. They state (p. 152) that although the Bengalese produces fertile hybrids with some Mannikins, hybrids between the Bengalese and the Silverbill are sterile. However, especially as elsewhere (p. 119) they suggest that a hybrid between the Sharptail and the Silverbill can be fertile, this point should be checked.

The Striated and Sharp-tailed Finches are considered to be members of the same species, *Lonchura striata*. (I use the generic name *Lonchura* after the most recent revision, that of Delacour (1943), although the names *Munia* and *Urolonchа* are more frequently applied.) The suggestion that the Bengalese is a hybrid of the Striated and Sharp-tailed Finches (and these do hybridize freely, according to Hopkinson, 1938) is both unnecessary and contradicted by the evidence. A

detailed account of the species is given by Stuart Baker (1926). There are two sub-specific groups which are distinguished on various grounds, the most obvious of which is the occurrence of 'lace markings' or squamations on the belly and rump feathers. The one group, native to Ceylon and India, forms the Striated Finches; the other, distributed from Nepal and Bengal to Malaya and China, consists of the Sharp-tailed Finches. My descriptions are based not only on those given by Stuart Baker and others, but also on my own examination of the collected skins in the British Museum of Natural History.

In all birds of the species the head, breast, back, wings, and tail are brown, while the belly and rump are lighter. In the Striated Finches the brown is very dark, tending to be almost black on the head and breast; the belly and rump are almost white and contrast markedly with the dark regions, especially as they show no squamations. The tail is not especially pointed, and is rather shorter relative to body size than in the Sharp-tailed Finches. The Sharptails have much less contrast between the dark and the light regions than do the Striated Finches. The brown tends to be of less deep a colour, and of a rather more reddish shade (this is not altogether clear in Stuart Baker's description, but is stated clearly by Vaurie (1949) and I have confirmed it). The appearance is further lightened because the central shafts of the brown feathers are much more conspicuously pale than in the Striated Finches, and because the edges of the breast feathers are outlined in a lighter shade. This last character is not shown by the Indian and Andaman Striated Finches but is shown by the Nicobar race. This race does, however, agree in all the other distinguishing characters, and also its limited distribution makes it unlikely to be relevant to this argument. The ground colour of the belly and rump is slightly darker in the Sharptails than in the Striated Finch; specimens from different regions show squamations to a varying extent, and where these markings are prominent they give a grey effect. The tail, as the name implies, is very sharply pointed: each feather individually is pointed and there is a marked gradation in length towards the central, longest, feather.

How, then, does the Bengalese compare with these wild birds? The easiest comparison to make is between them and a self-coloured brown Bengalese, and it is immediately obvious that this is quite different from a Striated Finch, as from all other species, but resembles some Sharp-tailed Finches greatly. The brown colour is not as dark as that of the Striated Finches, but has the same tone as that of the Sharptails; the belly and rump do not contrast strongly, and bear squamations. The tail is [illegible]ully pointed. The shafts are prominent on the brown feathers, and the breast feathers have light edges. All these characters can also be seen on the brown and white piebalds, though of course there is no such striking general impression of

Copyright] [*J. S. Haywood*

STRIATED AND SHARP-TAILED FINCHES

(about $\frac{1}{3}$rd natural size).

From left to right : Striated finch from Madras, India ; Sharptails from : Mussoorie, Nepal ; Henzada, Burma ; Penang, Malaya ; Szechuan, China ; Fukien, China ; Formosa.

[*To face p.* 105.

similarity. As long as one remembers that the white feathers of the piebald are superimposed upon the characteristic species plumage pattern, it is obvious from examination of the feathers that the Bengalese is a tame Sharp-tailed Finch, and does not have the characteristics of a Striated Finch or any other species.

Unfortunately I have not been able to compare the Bengalese with living Sharp-tailed Finches, as these are not freely on the market. Dr. Desmond Morris (unpublished) has compared the behaviour of the Bengalese with that of the Striated Finch, and with other species of Mannikin, in detail. He found that the behaviour patterns of the Bengalese were essentially the same as those of the Striated Finch, while differing from those of the other species. It is especially noteworthy that the Bengalese has no behaviour components characteristic of the Silverbill, whose behaviour is very clearly distinct from that of the Striated Finch. It is a pity that we do not know how far, if at all, the behaviour of the Sharp-tailed Finch differs from that of the Striated Finch ; one would expect that any difference which may exist would be very slight. Mr. William Bain, vice-chairman of the National Bengalese Fanciers' Association, wrote to me that " the Sharp-tailed Mannikin closely resembles the Bengalese in shape, size and mannerisms ".

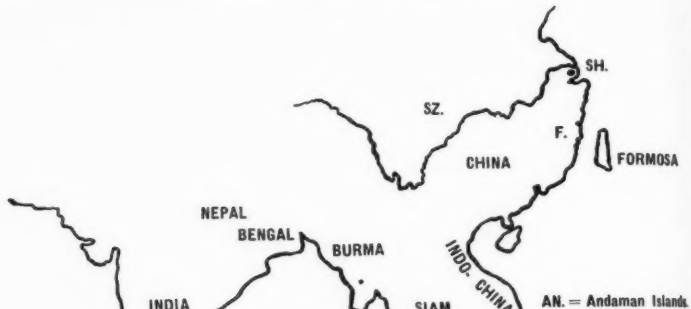
I think there can be little doubt that the Bengalese is a domesticated form of a Sharp-tailed Finch, i.e. that it is a member of the *acuticauda* subgroup of *Lonchura striata*. This view has frequently been expressed in the past, and I believe the evidence necessitates its acceptance in place of the theory of hybrid origin. It is less easy to say from where exactly the ancestral stock must have come. The most comprehensive account of the *L. s. acuticauda* group, that of Stuart Baker (1926), is rather unsatisfactory. This account recognizes three subspecies : *L. s. acuticauda* itself from Nepal and Bengal, *L. s. subsquamicollis* from Burma, Indo-China, Malaya and Sumatra, and *L. s. squamicollis* from China. The distinction depends largely on two characters : the nature of the light edges to the breast feathers, and the strength of the markings on the belly feathers. However, as so often happens, the natural populations do not fall clearly into separate groups, but instead there seems to be a continuous change between one area and another ; such continuous change can never be shown by the usual type of classification.

The majority of the British Museum specimens from the Indian end of the range are admittedly like Baker's *L. s. acuticauda*, which is described as having breast feathers with rufous edges and only faint squamations. Similarly, birds from peninsular Siam and Malaya have strong squamations and conspicuous pale edges to the breast feathers, in accordance with the description of *L. s. subsquamicollis*. But birds from areas in between, such as Burma, are quite clearly

LATE 3.

From left to right : Striated finch from Madras, India ; Sharptails from ; Mussoorie, Nepal ; Henzada, Burma ; Penang, Malaya ; Szechuan, China ; Fukien, China ; Formosa. (about ⅝ natural size).

To face p. 105.



South-East Asia : The region in which *Lonchura striata* occurs wild.

intermediate. Baker's description becomes much more seriously inadequate for birds from regions eastwards of Indo-China, for it does not suggest that there is a comparable trend of change across China. The description of *L. s. squamicollis* applies well to birds from the West China province of Szechuan. These have very heavily marked belly feathers and very clearly defined broad pale edges to the breast feathers, which are of a yet lighter brown than those of the other sub-species. This characteristic type of breast feather is shown by all specimens from China but birds from the east coast provinces, especially Fukien in the south-east, again have less strong squamations. The belly feathers of these birds are comparable to those of specimens from lower Burma, but their brown feathers are distinctive in being considerably paler. Birds from Formosa have even less clear squamations, and also their brown feathers are of a slightly richer tone than that of the Chinese mainland birds ; this has previously been pointed out by La Touche (1925), and Oberholser (1926) has even created a subspecies for the Formosan type of Sharptail. The Formosan specimens are in fact extremely similar to birds from Nepal, the only reasonably apparent difference being in their having slightly more conspicuous pale edges on the breast feathers.

The Bengalese clearly does not resemble the birds from the central part of the Sharp-tailed Finch's range, for it never has such strong squamations. The common name of 'Bengalese Finch' might be considered as circumstantial evidence of origin from the Bengal area, but this would be extremely unreliable. The name 'Bengali' was originally applied to the Cordon-bleu from Africa and may have been a corruption of Benguela. It was later used indiscriminately in the bird trade for many of the weaver-finches, and was then restricted to the Pied Mannikin as a result of Dr. Butler's influence (Flower, 1906). It would be interesting to know what the Japanese vernacular name for this bird signifies. It seems much more likely that the ancestral stock came from South-East China and/or Formosa. Taka-Tsukasa says that the original Japanese stock came from China and that the feathers of the abdomen were "white with pale, dusky streaks". Amongst my own stock of Bengalese, comprising over a hundred birds, the intensity of these streaks is rather variable, but seems to be usually less strong than that of the Fukien specimens while stronger than that of specimens from Formosa, to which that province is nearest. Specimens from other parts of China, whether from the Shanghai region further north along the coast or westwards, all have too strong markings. As the breast feathers of the Bengalese are clearly of the Chinese type, with conspicuous pale edges and of a rather pale brown, I think it must be concluded that the ancestors of the Bengalese most probably came from this South-East China region.

In summary, the Bengalese is a domesticated form of Sharp-tailed Finch which was developed in Japan from stock probably originating in South-East China or Formosa. There is no reason whatsoever to suppose that it is a hybrid of the Sharp-tailed Finch with any other bird.

Acknowledgments

I am most grateful for the help given me by Mr. J. D. Macdonald and the staff of the British Museum Bird Room, and by Mr. W. Bain and Mr. N. Tolmaer of the National Bengalese Fanciers' Association. I would like to thank especially Dr. A. J. Cain and Dr. D. J. Morris for their encouragement and advice, and Dr. Morris and Mr. J. S. Haywood for the photographs. I am extremely indebted to the Nuffield Foundation to whom I owe my apparatus and birds.

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LONDON ZOO NOTES

By J. J. YEALLAND

A White-necked Picathartes has been received from Sierra Leone as a present from Mr. J. I. Menzies who hand-reared the bird from a nestling. He fed it on small frogs, lizards, mealworms, grasshoppers, insectile food, and minced lean meat. It is now living with the one collected by the first " Zoo Quest " in 1954, and is, of course, only the second living specimen to be brought from Africa. Like the first specimen, this young bird has several filoplumes on the top of the otherwise bald head. The Grey-necked Picathartes brought by Mr. Webb from British Cameroon during 1948 continues to thrive.

Other gifts are a Citril Finch from Mr. W. Schenck, two White-throated and one Red-throated Humming Birds from Mr. Randau, an Indian Broad-billed Roller and a Loo Choo, or Lidth's Jay from Messrs. Brooke Bond and Co., a Fohkien Grey-headed Crow-Tit from Mr. G. H. Newmark and a small number of various insectivorous Indian birds, of which a Black-naped Oriole is the most noteworthy, from Mr. C. E. Engledew.

A fine Masai Ostrich has been received in exchange from the Bristol Zoo and a Pileated Kingfisher has been deposited.

The Cormorant hatched on about the 20th of February is now fully grown and flying. A second nest has been built and probably contains eggs. A Gannet's egg is being incubated in the same aviary.

Three Black-footed Penguins, five blue-bred green Masked Lovebirds, and two Cockatiels have been bred. Four Swinhoe's Pheasant chicks have been hatched and are being reared by the parents which successfully reared two last year. It is a pity that this handsome pheasant is

not more widely kept, for, like the Mikado, it is found only on Formosa and may be in danger of extinction there.

Great Eagle-Owl, Spotted Eagle-Owl, Maned Goose, and Impeyan Pheasant are the most noteworthy of the birds now incubating eggs. The " Homing " Budgerigars are, of course, breeding, not all of them in the boxes provided, for several pairs are nesting in the trees about the Gardens and in Regent's Park.

The Reeves deposited by the Norfolk Naturalists' Trust last autumn have now been sent to the Cley marshes.

* * *

BRITISH AVICULTURISTS' CLUB

The fifty-seventh meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 8th May, 1957, following a dinner at 7 p.m.

Chairman : Dr. E. Hindle.

Members of the Club : Miss P. Barclay-Smith, Hylton Blythe, A. W. Bolton, Miss K. Bonner, K. F. Clarke, W. D. Cummings, J. D'eath, Squadron-Leader C. Everitt, Mrs. C. Everitt, Miss R. Ezra, Miss S. A. Fothergill, H. J. Harman, Miss S. I. Hobday, F. E. B. Johnson, Miss E. M. Knobel, Miss M. H. Knobel-Harman, E. C. Lewis, Mrs. E. M. Lonsdale, S. Murray, K. A. Norris, C. M. Payne, A. A. Prestwich, D. M. Reid-Henry, R. C. J. Sawyer, D. Seth-Smith, P. Sutton, Mrs. R. Upton, E. N. T. Vane, C. H. Wastell, Mrs. C. H. Wastell, Mrs. G. Wheatley.

Guests : Mrs. K. F. Clarke, S. A. Croucher, Mrs. S. A. Croucher, T. E. Lewis, Miss D. G. Lonsdale, Mrs. S. Murray, Mrs. C. M. Payne, Mrs. D. Seth-Smith, Mrs. P. Sutton, Mrs. E. N. T. Vane, Miss F. Wood, W. A. Wood.

Members of the Club, 32 ; guests, 12 ; total, 44.

Mrs. Rosemary Upton showed slides to illustrate " Some Shetland Birds ". But let it not be supposed that this was just another talk on the Islands' birds, illustrated by the inevitable series of slides of little interest to anyone other than the photographer.

Mrs. Upton revisited the Shetlands in May–June, 1955, with the express purpose of photographing the Whimbrel and its nest. In this she succeeded admirably, and procured a fine series of photographs of a pair of nesting birds and a complete record of the hatching of four chicks. The time from when the first egg starred to that of the last chick leaving the nest was 46 hours—no less than 32 of which Mrs. Upton spent in observation. We were also shown excellent pictures of the Great Skua and its nest, Arctic Skua, Dunlin, Red-throated Diver, and others. Enjoyable though the pictures were, the

speaker's amusing description, enhanced by humorous sketches, of how they were obtained, greatly added to the enjoyment. Altogether it was a very happy blend of scientific information and enjoyable narrative.

E. N. T. Vane deserves a special credit for the efficient way in which he handled the projector.

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

NEWS AND VIEWS

The Bronze Medal of the Avicultural Society of South Australia has been awarded to C. C. Burfield, for breeding the Red-backed Quail, and to H. J. Hutchinson, for breeding the Black-fronted Quail.

* * *

An overseas visitor recently exclaimed, " Why, there's the Magazine, all in one row, I never saw that before ! " Actually, it is not in one row but in three ; the 62 volumes occupying 7 ft. 2 in. of shelf space—18 volumes, 20 inches, to the credit of our present Editor.

* * *

Frank A. Hartman, of the Ohio State University, writes : " I kept a pair of Sparrow Hawks in a cage in the laboratory for more than ten years. The female laid eggs and incubated them, but they never hatched because apparently they were not fertile. These birds were taken from the nest and kept in a flight-cage throughout life."

* * *

Mrs. Jean Warner, Ibadan, Western Nigeria, writes concerning Red-faced Lovebirds : " You say the flight-feathers of imported birds are invariably ruthlessly cut, but this is also true when one purchases birds from itinerant Hausa traders. In some cases too, the banded tail-feathers are extracted and used as a juju (native charm), and the same applies to the red tail-feathers of the Grey Parrot."

* * *

G. A. Gjessing, Drammen, Norway, reports an interesting event. In January his Rock Pebblers started to lay on the ground of the flight. The egg was put in a box on the ground and three further eggs were added to it. On the 10th February the first of three chicks was hatched, and all three, possibly one male and two females, are now fully independent. The temperature during this time was down to 20° F. in the heated shelter and about 0° F. outside.

Preliminary reports: E. J. Boosey, Senegal Parrots sitting on four eggs: "*Darenth-Hulme*," Pied Imperial and Green Imperial Fruit Pigeons have laid several eggs, but only one pair of Pied is sitting in earnest: Major V. Dilwyn Jones, Red-bellied Conure, three young ones in the nest and three eggs still to hatch: Kenneth Russell, Senegal Parrots, two eggs failed to hatch, contained well-developed embryos.

* * *

Some of our members do not seem to be familiar with the universally accepted rules governing the publication of notes and papers. When a writer submits a paper to a journal for publication, it is understood that he has not submitted it to any other journal, and will not do so unless it is rejected by the first recipient.

Our Editor has recently received several items it was intended to publish, only to find them appearing in other publications. Editors generally do their best to prevent duplication, but such is occasionally beyond their endeavours, and the same paper appears in more than one journal. We trust our contributors will lessen our Editor's worries by submitting only original matter.

A. A. P.

* * *

REVIEWS

BIRD WONDERS OF AUSTRALIA. By A. H. Chisholm. Fourth edition revised and enlarged. Angus and Robertson, London, 1956. Price 25*s*. net.

As the author states in the preface, this is not intended as a text-book of Australian birds, but its purpose is to present a factual, gossipy account of the "Believe-it-or-not" features of Australia's remarkable bird life. The book is divided into two sections—Biographical and General—and in the first part all the outstanding groups of Australian birds have been dealt with. Aviculturists will find much of interest concerning the habits in the wild of the birds they have known only in captivity, and many will wish that the chapter "The Land of Parrots" had been longer. Though admittedly a popular book, it contains a wealth of information, and many problems are explained in a clear and concise manner. To quote the titles of some of the chapters in the second section—"Good neighbours—sometimes (a study of the relations of birds and man in Australia)"; "Queer relations of birds and insects"; "Carrying the baby in birdland"—give some idea of the diversity of aspects of bird life the author deals with. The final chapter, "To settle an argument," is devoted to

discussion of various questions concerning birds which have been raised by correspondence during the author's conduct of Nature columns in various newspapers. There are 64 photographic illustrations and a coloured photograph frontispiece.

P. B-S.

SOME COMMON AUSTRALIAN BIRDS. By ALAN BELL with drawings by SHIRLEY BELL. Published by the Oxford University Press. London, 1956. Price 35*s*. net.

This small handbook contains descriptions and illustrations of just over a hundred of the 650 or more birds native to Australia. As the author states in his introduction, the book is designed to help people in the more closely settled parts of Australia to recognize birds they may see at home in the garden or during a day's outing. In each species the range and salient points of its appearance on a brief view is given, and followed by more detailed description and an account, in somewhat picturesque language, of habits, behaviour nest, etc. The illustrations have been executed with the aim of giving an impression which will help in quick identification. Some are good but others are out of drawing. Eleven species of the Parrot family have been included, but the illustrations of some of these are not very happy.

B. B. F.

* * *

NOTES

SONG OF VIOLET-EARED WAXBILL

I feel I owe an apology to the charming little Violet-eared Waxbill for saying in my book, *Foreign Bird Keeping*, that it has nothing much in the way of a song. When I wrote this I had not kept the species since before the war, and I still cannot remember that the male of a pair in breeding condition we then had was much of a songster—but it is a long time ago ; I should say about 1935.

Now, however, we have a pair that have just gone to nest, and the exquisite beauty of the cock is quite matched by the beauty of his song.

When one thinks of small foreign seed-eating songsters one's thoughts naturally turn to members of the Serin family and chiefly perhaps to the well-known Green and Grey Singing Finches—both delightful songsters—particularly the latter.

Waxbills, on the other hand, are not remarkable for their song, so it is all the more unexpected that the Violet-eared should have such a fine one. Its song, though perhaps rather more varied, is remarkably like that of the Skylark, and if it had the same astonishing volume in relation to the bird's size as is the case with the Grey Singing Finch, I have little doubt that it would be acknowledged as one of the finest songsters of all the small seed-eaters.

EDWARD J. BOOSEY.

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NEW MEMBERS

The eighty-seven Candidates for Election in the March–April, 1957, number of the AVICULTURAL MAGAZINE were duly elected members of the Society.

CHANGES OF ADDRESS

Major C. N. CLAYDEN, to The Middlesex Regt., H.Q. Eastern Command, Hounslow, Middx.
J. DALBORG-JOHANSEN, to Jernbanegade 6, Dyrlaege, Odense, Denmark.
W. W. DIEDRICH, to Koningin Wilhelminalaan 354, Voorburg, Holland.
K. A. OSTERMEYER, 85 Eastern Road, Romford, Essex.
JAMES TAYLOR, to Alstone Lawns, Alstone, Tewkesbury, Glos.
ANDREA TIPA, to Salita San Rocco 7/21, Genoa, Italy.

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(Coloured Plate Fund)

	£	s.	d.
W. L. EAVES	1	2	0
Captain C. SCOTT-HOPKINS .	1	2	0

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Will the senders of the following Money Orders please notify the Hon. Treasurer, so that receipts may be sent to them.

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MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is ONE PENNY PER WORD. *Payment must accompany the advertisement, which must be sent on or before the 15th of the month to* A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. *All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.*

WANTED

Peters, *Check-List of Birds of the World*, volume 1.—R. G. SMITH, 247 Gladstone Avenue, Wood Green, London, N. 22.

FOR SALE

AVICULTURAL MAGAZINE, 1954, 1955, 1956, complete as new, 30*s*.—R. T. KYNE, 30 King Street, Kirton, Boston, Lincolnshire.

Surplus copies of coloured plates by D. M. Reid-Henry that have appeared in recent numbers of the Magazine, suitable for framing. Price 1*s*. each, post free. Mountain Blue Robin, Green-headed Olive Sunbird, Scarlet-tufted Malachite Sunbird, Hartlaub's Touraco, Blue-shouldered Robin-Chat, Scarlet Tanager, Wattled Starling, Emerald Starling, Lineolated Parrakeet, Brown-headed Parrot, Red-bellied Conure, Yellow-cheeked Conure, Red-faced Lovebird, Golden-winged Parrakeet, Green-winged King Parrakeet, White-bellied and Black-headed Caique, Vieillot's Crested Fireback Pheasant.—HON. SECRETARY, 61 Chase Road, Oakwood, London, N.14.

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